**CORRESPONDENCE/MEMORANDUM**

DATE: September 26, 2000 FILE REF: AMAA-64

TO: File

FROM: Jeff Myers

SUBJECT: NR 445 Decision Criteria for Listing Chemicals in NR 445

# Listing of Chemicals in Ch. NR 445 Wis. Admin. Code

### Chemicals with Acute Non-Carcinogenic Health Effects (Table 1,2, and 4 Chemicals)

These chemicals are of concern from acute exposures (1 hour or 24 hour). The fact that they are listed in the American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) book indicates that they are chemicals that can be present in the air and are hazardous. The listing by this agency and development of a limit (TLV), demonstrates that they are hazardous air contaminants. The hazard is presumed whether or not actual exposures in Wisconsin currently exist. There are some exceptions to listing a chemical in Tables 1,2, or 4. They are listed in the attached table along with their rationale:

| Exceptions to Listing in NR 445 Tables 1,2 & 4 | Rationale of Exceptions |
|---|---|
| Simple asphyxiants | Asphyxiants are only toxic in very high concentrations and act by displacing oxygen from the air. It is highly unlikely that an outdoor exposure would occur at concentrations needed to cause asphyxiation. This applies only to chemicals with only asphyxiation listed as a critical effect in the ACGIH documentation. |
| Substances in particulate form with TLVs >=10mg/M3 | Current particulate standards for total suspended particulates (TSP) and particulate matter 10 microns or less in size (PM10) regulations already limit the concentration of particulates to a more stringent level than the level that a TLV of 10 mg/M3 would allow. Since there is a regulation that controls the potential for overexposure to these chemicals, the additional listing in NR 445 would be redundant. The current TSP standard is 150 ug/M3 (24 hour average). The current PM10 standard is 150 ug/M3 (24 hour average). The NR 445 standard (2.4% of the TLV) for a chemical with a TLV of 10 mg/M3 would be 240 ug/M3 (24 hour average). |
| Vapors with TLVs >99 ppm | Originally when NR 445 was established, it was thought that no sources could ever emit so much of these lower toxicity chemicals that there could ever be an exposure at 2.4% of the |



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| Exceptions to Listing in NR 445 Tables 1,2 & 4 | Rationale of Exceptions |
|---|---|
| | TLV. Analysis by DNR staff showed this assumption is not valid, but that there would only be a few sources that could present a problem. Since these chemicals may be used in high volumes even though they are lower toxicity, DNR will now receive reporting on emissions and DNR will check to make sure the Ambient Air Concentration (AAC) (calculated in the same manner as for chemicals listed in Table 1) is not exceeded. This "ensuring" that the AAC will be met will be done on a source by source basis, as needed, rather than list these chemicals in the rule. For these chemicals, if there is likelihood of exceeding the AAC, a source must take enforceable actions to ensure that the AAC will not be exceeded. |

**Known Carcinogens (Table 3A) and Suspected Carcinogens (Table 3B)**

These chemicals are a concern from the chronic exposure standpoint. The fact that they are listed as known or suspected carcinogens in the cancer listings of both the National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) indicates that they are chemicals that are hazardous to human and environmental health. The listing by both these agencies demonstrates that they are hazardous air contaminants. The hazard is presumed whether or not actual exposures in Wisconsin currently exist. If both agencies agree that a chemical is a known carcinogen or that it is a suspected carcinogen, that chemical is listed in Table 3A or 3 B respectively. If one agency lists a chemical as a known carcinogen, while the other agency lists it as a suspected carcinogen, that chemical is listed in Table 3B (Suspected Carcinogens).

There are some exceptions to listing a chemical in Tables 3A or 3B. They are listed in the attached table along with their rationale:

| Exceptions to Listing in NR 445 Tables 3A or 3B | Rationale of Exceptions |
|---|---|
| A chemical currently in Table 3A or 3B is delisted from NTP or IARC because the scientific evidence does not support it's listing | Since the evidence for carcinogenicity has been reviewed, the scientific data is not as clear as once thought and the chemical is delisted from one agency or another. Since it is no longer on both lists, this chemical will be delisted. |
| A chemical is known to not be a carcinogen via the inhalation pathway | Risk guidance from EPA as well as commonly accepted practice in the field of risk assessment currently states that if a chemical is carcinogenic via one route of exposure, it is to be assumed it is carcinogenic from other routes of exposure. Where NTP and IARC have shown that a chemical is NOT a carcinogen via inhalation that chemical may be removed from Table 3A or 3B |

## Chemicals with US EPA Reference Concentrations (RfCs) (Table 5)

These chemicals are a concern from the chronic exposure standpoint. The fact that they are listed by US EPA with inhalation specific health effects indicates that they are chemicals that are hazardous to human and environmental health. The listing by EPA demonstrates that they are hazardous air contaminants. The hazard is presumed whether or not actual exposures in Wisconsin currently exist. There is only one exception to listing a chemical with a RfC in Table 5. If a chemical has a RfC that has an uncertainty factor of greater than 300, the chemical is not listed in Table 5. Instead, the DNR has established a "Watchlist" for these chemicals. The Department requires facilities to report emissions of these chemicals and the Department's responsibility is to monitor emissions from sources of these chemicals and seek voluntary emission reductions from sources in cases where potential or actual emissions could be a cause for public health or environmental concern. The rationale for this policy is that the uncertainty associated with some RfCs is very great and to require sources to meet the RfC levels could be very onerous and without demonstrable health and environmental benefits.

## Listing of Chemicals in More than One Table

Based on their hazards, the Department will list some chemicals in more than one table in NR 445. The scientific rationale for this is that chemicals can cause carcinogenic and non-carcinogenic health effects and there is concern about acute as well as chronic effects. Because the way carcinogens are regulated (technology based controls are required), there currently is no upper limit for an ambient air concentration that is established for them. In some cases, a source could emit enough of a carcinogen to cause non-cancer health effects. In addition, some chemicals (those chemicals listed in Tables 1,2 and 4 in NR 445 currently) have acute toxicity concentrations established for them that are protective of short term exposures (1hour and 24 hour). Long term exposures can also cause non-carcinogenic health effects, so where there is information on a chemical it may have an annual concentration based health value as well (Chemicals listed in Table 5). The listing of chemicals in more than one table ensures that long term and short term exposures do not pose an unreasonable risk and is a prudent and scientifically sound approach to preventing adverse health effects.